

# PROTECTING THE TREASURES OF ISLAS LOS CORONADOS

*Museum research and collections play a vital role*

By William T. Everett

On any crisp, clear afternoon in San Diego you can look to the south and see in the distance the silhouettes of four small islands. They often appear to be floating in a sea of fiery bronze as the reflection of the descending sun ignites the sea surface. These are Islas Los Coronados: a group of rugged, windswept rocks six miles off the coast of northwestern Baja California and about 18 miles south of San Diego.

Islands have a special attraction for biologists. Perhaps it is the limited and

definable nature of the biota that captures the imagination. Often, understanding species interrelationships within the limited environment of an island sheds light on the complex systems that maintain ecological equilibrium on nearby continents.

For these and other reasons, Islas Los Coronados have been the subject of much scientific interest since near the turn of the century. Scientists from the San Diego Natural History Museum have visited the islands regularly and recorded the status of the indigenous plants and animals. A reasonably good record of the biological history of the islands has

resulted, presenting a unique opportunity to assess and analyze changes that have taken place over the years. The specimens and data collected initially for purely scientific interest, and the current efforts of museum scientists, are now playing a new role in helping to identify, preserve, and protect the islands' priceless natural resources.

## MUSEUM COLLECTIONS AND THE FATE OF THE BROWN PELICAN

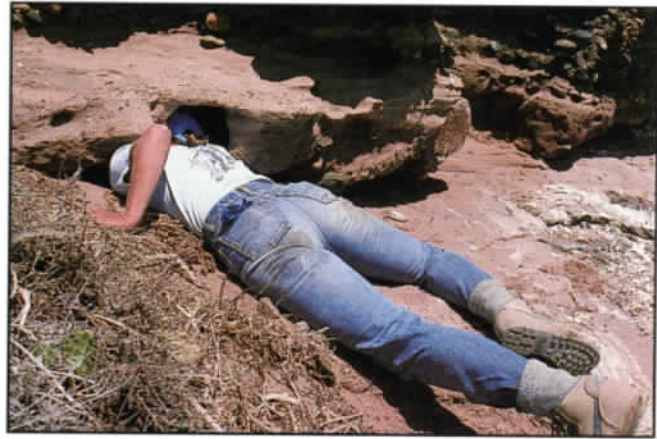
A well-known example of the value of museum research and collections resulted, in part, from bird studies on Islas Los Coronados. Bird research on the islands played a key role in one of the most important environmental issues in recent times: the fight to ban DDT. It was the dramatic decline in breeding success for California brown pelicans in the late 1960s and early 1970s that alerted scientists to an unusual situation adversely affecting the birds.

Drs. Dan Anderson and Joseph Jehl investigated pelican breeding colonies at islands off Southern California and Baja California, including Islas Los Coronados, and found that many of the pelicans' nests contained fresh eggs that had been crushed. By comparing these eggs with those collected as museum specimens many decades ago, they found that the recent eggs had dramatically thinner shells. The problem was that the birds were laying eggs with shells too thin to support the weight of the incubating adult birds. This eggshell thinning was soon traced to the persistent pesticide



Photo by William Everett

*Scientists from the San Diego Natural History Museum are working to identify and preserve the priceless natural resources of Islas Los Coronados.*



Photos by Frank Todd



Museum researcher William Everett and assistant Alan Klier (top left) remove a black storm-petrel from a net set up to capture the birds for brief study as they come ashore at night. Paula Klier (top right) peers into one of the small caves used by the storm-petrels for breeding. The forbidding terrain of the islands (center) makes landings hazardous, and researchers must obtain special permission from the Mexican government to go ashore. The fate of the black storm-petrel (below) may literally be in human hands as museum researchers and others strive to protect their habitat.







*The remains of a Prohibition-era casino and saloon still cling to a hillside above a cove on South Island.*

## EXPLORING ISLAS LOS CORONADOS

Islas Los Coronados are essentially mountain ridges—an extension of the coastal geological structures to the north. The largest of Islas Los Coronados, South Island, is about two miles long and a half-mile wide at its widest point, rising 672 feet above the sea surface.

The second-largest of the group, North Island, is a mile and a half long and reaches a maximum elevation of 476 feet. Between these two lie Middle Island and Middle Rock, with elevations of 251 and 101 feet, respectively.

The abundant middens on the South Island reveal that the first visitors to the islands were undoubtedly local Indians, who made the relatively short but still dangerous canoe voyage from the mainland in search of the abundant shellfish. It was not until 1542 that Juan Cabrillo become the first European to view the islands en route to his historic landing in what would later be San Diego.

Lack of fresh water precluded further interest in the islands until the early 1930s, when enterprising local businessmen realized that the restrictions imposed by prohibition in the United States and the romance of the islands combined to make feasible a saloon and casino operation. A sheltered cove on South Island offered a

reasonable anchorage, and the establishment soon gained a reputation as a discreet place for indiscreet activities. When prohibition was repealed, the operation foundered and the buildings fell into disrepair. All that remains of this colorful episode today are remnants of the foundation of the casino.

Today the only human inhabitants of the island are a lighthouse keeper and his family, a small detachment of Mexican marines, and occasionally a few itinerant lobster fishermen. The islands are still a favorite destination of San Diego sport fishers, who visit the waters around the islands with hope of catching yellowtail, albacore, or any of the other abundant gamefish.

To land on the islands—and there are few safe landing places—one must have a special permit from the Mexican government. And even if the islands were not infested with cactus and kelp flies, their precipitous topography and crumbling rocks make going ashore risky business.

But it is precisely this hostile nature that has protected the islands over the years from many destructive human activities and intrusions. This natural protection has also helped to maintain much of the native flora and fauna.

DDT and its metabolites, which found their way from mainland chemical plants through the food chain ultimately to the pelicans. The banning of DDT in the United States has resulted in a dramatic increase in the pelican population in the last decade.

This success story also serves to illustrate that endangered species can and do recover, given the proper protection. Annual monitoring of the pelican nesting colony on Islas Los Coronados is an important facet of the ongoing effort to secure a bright future for the California brown pelican.

### BIOLOGY OF THE BLACK STORM-PETREL

Bird research on the islands is currently focused on another interesting species of seabird. In 1989, the San Diego Natural History Museum, along with a Mexican university and governmental agency, began investigating several aspects of the biology of the black storm-petrel.

These small, dark seabirds are generally inhabitants of the open ocean. Storm-petrels are so named as a result of observations by early mariners, who noted that these birds often appeared and sought refuge from storms in the lee of sailing vessels. Their habit of foraging just above the sea surface and dangling their legs gave them the appearance of walking on the water, so Saint Peter ("Petrel") seemed an appropriate namesake.

Approaching land at any time is perilous for storm-petrels, as they are easy prey for ravenous gulls. But the reproductive instinct annually drives the birds to islands for egg-laying, and evolution has made this behavior strictly nocturnal. Those storm-petrels foolish enough to approach land during the day did not survive long enough to make a contribution to the species' gene pool.

It takes a night on the islands to reveal the presence of these peculiar birds. As daylight fades away the gulls settle down for the night, and only after pitch-blackness has set in does one hear the first raspy, croaking calls of the storm-petrels. Their vocalizations have to be heard to be believed: it takes little imagination to visualize creatures from





Gathering and recording data about Islas Los Coronados species may contribute to their long-term survival.

another planet as the source of the eerie, spine-tingling sounds. Somehow in the darkness the birds are able to locate the entrance to their underground nests, where they tend to their domestic duties and either settle down for the following day or depart well before the sun rises.

Surprisingly little is known about the black storm-petrel. Ongoing research is answering questions regarding the species' courtship behavior, incubation period, growth rates and fledging of the chicks, and a variety of other aspects of breeding biology.

The time-honored tradition of placing numbered aluminum bands on the birds' legs allows biologists to track the behavior and progress of specific individuals. Piece by piece the information eventually adds up and the picture becomes clear. In order to have reliable data, and to gain an understanding of a species' annual cycle, it often takes three years or more of research.

But what is the ultimate value of this type of information? At the very least it provides a benchmark in time against which future changes can be compared.

## THE FATE OF ISLAND BIRDS

Of the approximately 175 species of birds that have been recorded on Islas Los Coronados, about 30 species breed there. Of these, only one is restricted completely to the island group. Recent surveys have, unfortunately, failed to locate any of the Los Coronados Islands race of the song sparrow, and apparently it is the most recent North American bird to become extinct.

An impressive percentage of the world's extinct and endangered birds are island inhabitants. The isolation afforded by an island existence also often creates this extreme vulnerability to change.

In addition, seabirds forage over the open ocean in search of food, thereby acting as proximate collectors or samplers of the general health of the marine environment. As demonstrated by the saga of the brown pelican, the well-being of a species of seabird can act as a harbinger of changes in the health of the environment in general. With increasing threats from pollution, oil spills, and overfishing, close monitoring of animals near the top of the food chain has obvious benefits.

### PROTECTING THE ISLANDS

Considering all these factors, protecting Islas Los Coronados for wildlife is clearly highly desirable. The islands are not, however, without some serious problems. As has been the case on too many islands throughout the world, goats and other herbivores have been introduced to South Island. The resulting destruction of the vegetation may have led to the recent extinction of the Los Coronados Islands race of the song sparrow, and it does not bode well for the other unique species of plants and animals.

The North Island is comparatively pristine, but house cats were released several years ago and currently wreak havoc on the defenseless nocturnal seabirds, killing and eating many hundreds each year. Commercial collecting of gull and pelican eggs for bakeries and restaurants in Baja California results in substantial disturbance to the islands, even though these intrusions are brief.

These problems can be overcome, and some limited human use can be compatible with preservation. Efforts are currently under way to afford the islands official recognition as a reserve by the Mexican government, so there is reason to hope that future generations will have these islands as an example of concerned stewardship of valuable and unique natural resources. □

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